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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,911	08/04/2003	Jan-Ruei Lin	LINJ3045/EM	2877

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EXAMINER

SAID, MANSOUR M

ART UNIT	PAPER NUMBER
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2673

DATE MAILED: 10/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/632,911

Applicant(s)

LIN ET AL.

Examiner

MANSOUR M. SAID

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 10-17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 10 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 10, line 15, and in claim 12, line 2, Applicant disclosed the term “a second switch” without mentioned a first switch. Appropriate correction is required.

As to Claim 10, line 9, the term “multiplxer” should be changed to –multiplexer--.  
Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Booth, Jr. et al. (6,731,306 B2; hereinafter referred to as Booth) in view of Hudson et al. (6,005,558; hereinafter referred to as Hudson).**

**As to claim 1**, Booth teaches a Pixel Circuit For Liquid Crystal Display (circuit, (figures 6, 130)) Using for lowering power consumption via combining an analogue and a digital circuit

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(figures 4-5, column 3, lines 20-35 and column 4, lines 16-34), the circuit comprises a plurality of multiplexers (multipliers, (figures 6, (134 & 138)) acting as switching elements for performing a plurality of output voltage transforming functions (column 5, line 45 through column 6, line 3); a thin film transistor (figures 5-6, (125)) and a capacitor (figure 6, (142)), for storing the digital voltage signals stored in the capacitor (figures 5-6, (142)) (column 5, lines 8-30); a thin film transistor (figures 5-6)), for connecting a scanning line (figure 4-6, (114)) and a data line (figures 5-6, (116)), acting as a control switch of the circuit; and a capacitor, connecting to the thin film transistor, where analogue or digital signals from the data line are stored (column 3, lines 35-65, and column 4, lines 15-33).

Booth does not expressly teach a static memory

However, Huston teaches a static memory (column paragraph 0031, paragraph 0034, column 6, paragraph 0094-0095, and columns 8-9 paragraph 0122).

Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to incorporate Huston's device having a static memory (SRAM) into Booth's device so that a sub-image can be written randomly to the memory cells (column 3, paragraph 0031).

**As to claim 2**, Booth teaches wherein said plurality of multiplexers (multipliers, (figures 6, (134 & 138)) comprises a first multiplexer (figure 6, (134)) and a second multiplexer (figure 6, (138)) (column 5, lines 45-67).

**As to claim 3**, Booth teaches wherein said first multiplexer (figure 6, (134)) further comprises a general voltage terminal (INT) and a reference voltage terminal (DELTA) (column 5, lines 45-67).

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**As to claim 4**, Booth teaches all claimed limitations except that a static memory

However, Huston teaches a static memory (column paragraph 0031, paragraph 0034, column 6, paragraph 0094-0095, and columns 8-9 paragraph 0122).

Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to incorporate Huston's device having a static memory (SRAM) into Booth's device so that a sub-image can be written randomly to the memory cells (column 3, paragraph 0031).

**As to claim 5**, Booth teaches wherein the second multiplexer (figure 6, (138)) further comprises a selection terminal (figure 6, (140)); an output terminal (column 5, lines 60-67); a first mode terminal (digital); and a second mode terminal (analog) (column 5, lines 45-67 and column 6, lines 1-21).

**As to claim 6**, Booth teaches wherein said second multiplexer further connects to a mode terminal (D/A) (column 5, lines 45-67 and column 6, lines 1-21).

**As to claim 7**, Booth wherein said output terminal further connects to a liquid crystal unit (figure 6, (125)) (column 5, lines 45-67 and column 6, lines 1-21).

**As to claim 8**, Booth teaches wherein the first mode terminal further connects to the capacitor (figure 6, (142)) and the thin film transistor (figure 6, (125)) (electrically connected each other) (column 5, lines 45-67 and column 6, lines 1-21).

**As to claim 9**, Booth shows wherein the second mode (D/A) terminal further connects to the first multiplexer (figure 6, (134)) (electrically connected) (column 5, lines 45-67 and column 6, lines 1-21).

***Allowable Subject Matter***

**5. Claims 10-17 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.**

The following is a statement of reasons for the indication of allowable subject matter: “a static memory, connecting to a scanning line connected to the first multiplexer and the demultiplexer, for storing the digital voltage signals stored in the demultiplexer; a second switch device, connecting to the first multiplexer, the demultiplexer and a liquid crystal display”.

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hudson et al. (6,005,558) teaches display with multiplexer pixels.

Hebiguchi et al. (2001/0015715 A) teaches an active matrix type liquid crystal display device.

Nakajima (6,333,737 B1) teaches a liquid crystal display device having integrated operating means.

Nathan et al. (2005/0007352 A1) teaches an integrated multiplexer and demultiplexer for active matrix display imaging arrays.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MANSOUR M. SAID whose telephone number is (571) 272-7679. The examiner can normally be reached on MF (8:30-6:30).

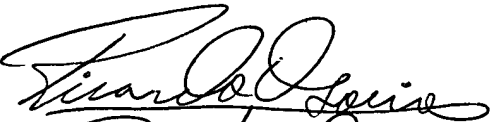
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BIPIN SHALWALA can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mansour M. Said

10/11/05

  
Ricardo Osorio  
PRIMARY EXAMINER